A good way to choose your ULCS electives is to have an idea about the kind of work or career path you want to pursue after getting your degree, and then to choose the courses that will help you achieve your goals. A student can work with an advisor to identify the combination of electives tailored to his or her needs. For some of the more established and anticipated paths, however, we have predefined the CS-LSA tracks listed below that provide a coherent group of elective courses appropriate for those paths. Note that if you take a 500-level course to satisfy the requirements of a track that you successfully complete, then the course can count towards your ULCS credit requirements.

The CS-LSA Tracks are optional and a student does not have to pursue any track, and instead can select other combinations of approved ULCS courses selected with an advisor’s advice.

CS-LSA Tracks do not appear on the student’s transcript or diploma; however, the CSE Undergraduate Advising Office can provide a letter stating a student has completed a specific track within the CS-LSA concentration plan. All final grades need to be posted to receive a CS-LSA Track completion letter.

- **Artificial Intelligence**: AI is a broadly based multidisciplinary area comprising theoretical, experimental, and applied investigations of intelligent systems. Required: 1) EECS 492; 2) Machine Learning¹; 3) one of EECS 442, Robotics¹, 543, 545, 592, 595; and 4) a 4th ULCS of student’s choice.

- **Bioinformatics**: Computation plays an increasingly important role in modern biology. This is an interdisciplinary track. Required: three ULCS courses- 1) at least two of: EECS 477, 484, 485, 492; 2) a 3rd ULCS course of student’s choice; 3) BIOINF 527; and 4) BIOLOGY 305 or MCDB 310.

- **Data and Information**: Fast information storage and retrieval are crucial to many computer applications, and manipulating large data collections on servers or networks pose difficult challenges for computer professionals. Required: 1) EECS 484; 2) EECS 485; 3) one of EECS 477, 482, or 492; and 4) a 4th ULCS of student’s choice.

- **Economics and Computation**: As social and market interactions become more computational, computer science has adopted more traditional economic concepts such as decentralized decision-making and allocation of resources. This is an interdisciplinary track. Required: 1) at least one of: EECS 492 or EECS 547; 2) at least two of: EECS 475, 485, 492, 547, 588; 3) ECON 401; and 4) one of: ECON 406, 409, 431, 442.

- **Robotics and Vision**: Until recently most robots were stationary manufacturing devices, but they are rapidly evolving into mobile information gathering and decision making platforms, with vision being perhaps their most important information gathering capability. Required: 1) Robotics¹; 2) EECS 442; 3) one of: EECS 492, Machine Learning¹, 542, 543, 567, 568, and 4) a 4th ULCS course of student’s choice.

- **Security**: Security for hardware, software, and networked systems is one of the fastest growing areas of computer science. Required: 1) Security¹; 2) EECS 475 or 575; 3) EECS 482, 484, or 485; and 4) a 4th ULCS of student’s choice.

- **Software Development**: Designing and developing large software systems is a formidable engineering challenge and is the primary enterprise of the software industry. Required: 1) EECS 381; 2) EECS 477; 3) EECS 481; and 4) a 4th ULCS of student’s choice.

- **Software Systems**: Software systems are the tools and applications we use when we compute. Required: 1) at least three of: EECS 482, 483, 484, 489; and 2) a 4th ULCS of student’s choice.

- **Theory of Computation**: Research on mathematical foundations has enormously influenced the development of computer science, yielding advances in data management, communications, security, and many other areas. This is an interdisciplinary track. Required: 1) EECS 477; 2) one of: EECS 475, 480, Machine Learning¹; 3) one of: EECS 574, 575, 586; and 4) two of the following: Math 412, 465, 425, 475, Stats 426, IOE 510, 512, 518, and EECS 550.

* If a course is used as a CS-LSA Concentration Core Course, it may not also count for a CS-LSA Track course (no double counting).

¹ These courses have previously been offered as Special Topics courses (EECS 398 or 498). A permanent course number is pending.